

RESERVE COPY PATENT SPECIFICATION



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PROVISIONAL SPECIFICATION.

Improvements in or relating to Impression Cylinders for Printing Machines.

I, LESLIE THOMAS ALBERT ROBINSON, British Subject, of 5, Arundel Street, Strand, London, W.C.2, do hereby declare the nature of this invention to be as follows:—

This invention relates to impression cylinders more particularly intended for use in rotary intaglio photogravure printing machines. In connection with rotary intaglio photogravure machines it is known to employ a split printing cylinder carrying a design sheet which is tensioned during assembly of the printing cylinder segments the edges of the design sheet extending inwardly of the printing cylinder segments. In such an arrangement a gap exists in the printing cylinder surface in spite of the fact that the opposite faces of the design sheet abut against each other at the gap thus leaving a very small gap which is liable to acquire printing ink and unless some means be provided it may happen that a mark is left on the paper to be printed on when it passes over the aforesaid gap. The present invention has for its object to so construct the impression cylinder as to avoid any possibility of a mark being left on the paper or imprinted on the paper by the gap in the associated printing cylinder.

According to the present invention the impression cylinder is gapped and provided with a blanket the ends of which extend into the said gap and are secured therein in such manner that one end at least can be tightened so as to stretch the rubber sheet and thereafter retain it in the tightened position. In a convenient form of the invention one side of the gap is provided with an undercut recess to receive two bars extending the width of the cylinder one end of the blanket which may be in the form of a rubber sheet being interposed between the two bars and secured therebetween by screws or other suitable means. The inner end of the gap is provided with a bore the major portion of which is in one side of the gap the remaining part of the bore being formed in the other face of the gap. This bore

is adapted to act as a bearing for a square shaft having reduced ends. The latter are provided with sleeves which are supported in the aforesaid bore and the reduced ends of the shaft are formed with square ends so that the shaft can be rotated from either side or end of the impression cylinder. Inwardly of the sleeve the square shaft is slotted and the opposite end of the rubber blanket sheet is passed through the slot and may be retained therein by any suitable means. Each sleeve may be formed with or may have rigidly secured thereto a ratchet wheel adapted to co-act with a pawl so that the shaft after having been angularly displaced so as to tighten the rubber sheet to the desired extent is held in the desired position. On pawl is preferably provided at each end of the impression cylinder and may co-act with a stop or stops which limit the movement of the pawl or pawls to the desired extent.

Obviously the printing cylinder and the impression cylinder should be run in synchronism and the two cylinders should be so positioned and arranged that the blanketed gap in the impression cylinder comes opposite the small gap in the printing cylinder. When in operation the circular continuity of the rubber sheet is broken at the gap in the impression cylinder because of the fact that the rubber sheet assumes a flat or straight line form instead of following the curved form of the impression cylinder and hence there is no contact of the paper to be printed on at the gap in the printing cylinder when the two gaps meet and consequently no printed or ink impression on the paper.

Dated this 10th day of September, 1930.

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[Price 1/-]

COMPLETE SPECIFICATION.

Improvements in or relating to Impression Cylinders for Printing Machines.

I, LESLIE THOMAS ALBERT ROBINSON, British Subject, of 5, Arundel Street, Strand, London, W.C. 2, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to impression cylinders of the type having a gap in its peripheral surface the said gap being provided with means to grip and tension a flexible covering superimposed on the said cylinder. The present invention whilst being applicable to impression cylinders of the aforesaid type is more particularly intended although not limited to, impression cylinders for use in rotary intaglio photogravure printing machines. In connection with rotary intaglio photogravure machines it is known to employ a split printing cylinder carrying a design sheet which is tensioned during assembly of the printing cylinder segments the edges of the design sheet extending inwardly of the printing cylinder segments. In such an arrangement a gap exists in the printing cylinder surface in spite of the fact that the opposite faces of the design sheet abut against each other at the gap thus leaving a very small gap which is liable to acquire printing ink and unless some means be provided it may happen that a mark is left on the paper to be printed on when it passes over the aforesaid gap. The present invention has for its object to so construct the impression cylinder as to avoid any possibility of a mark being left on the paper or imprinted on the paper by the gap in the associated printing cylinder.

According to the present invention the impression cylinder is gapped and provided with an undercut recess to receive two bars extending the length of the cylinder one end of a blanket such as a rubber sheet being interposed between the two bars and secured therebetween by screws or other means the other end of the blanket or rubber sheet being held by means in such manner that the said means can be rotated so as to impart the desired tension or stretch to the said blanket. Preferably the gap in the cylinder is extended inwardly to form a bore having its centre offset from the centre of the

gap the said bore being adapted to receive and support a square shaft on the ends of which sleeves are mounted so as to act as bearings for the square shaft. The shaft is formed with square ends or one square end so that the shaft can be rotated to stretch or tighten the blanket the said shaft being retained in the adjusted position by a ratchet or ratchets adapted to co-operate with a pawl or pawls. One sleeve is formed with or has rigidly secured thereto a ratchet wheel adapted to co-operate with a pawl mounted on the cylinder end so as to retain the shaft in any position into which it has been rotatably adjusted. One end of the blanket is passed through a slot in the shaft the blanket end being secured in the said slot by suitable means so that on rotation of the shaft the blanket is stretched to the desired extent.

In order that the invention may be clearly understood and readily carried into effect reference is made to the accompanying drawing which shows diagrammatically and by way of example a construction of an impression cylinder in accordance with the present invention.

Figure 1 is an elevation of an impression cylinder in accordance with the present invention.

Figure 2 is an end view.

Figure 3 is an elevation showing the left hand end of the shaft detached from the cylinder.

Referring to the drawing which shows a convenient form of the invention 1 is an impression cylinder which is gapped as at 2 (Figure 2) and provided with a blanket 3 the ends 4, 5 of which extend into the gap 2 and are secured therein in such manner that one end at least say the end 5 can be tightened so as to stretch the blanket 3 which may be in the form of a rubber sheet and subsequently retained in the stretched position by suitable means such as a pawl and ratchet mechanism 6. One side of the gap 2 is provided with an undercut recess 8 to receive two bars 9, 10 which extend the length of the cylinder, one end 4 of the blanket 3 being interposed between the two bars 9 and 10 and secured therebetween by screws 11 or other suitable means. The inner end of the gap terminates in a bore 12 the major portion of which is offset into one side of the gap the remaining portion of the bore

- 12 being formed in the other face of the gap, that is to say, the centre of the bore 12 is not in vertical alignment with the vertical centre line through the gap 2.
- 5 The bore 12 at one end is adapted to act as a bearing for a square shaft 13 having a reduced part 14 on which are mounted two half bearing rings 15 forming a sleeve. The other end of the shaft is
- 10 square and supports a sleeve having a circular part 17, a ratchet portion 7 and a circular part 16. The circular part 16 ratchet wheel 7 and circular part 19 are held in position as a
- 15 whole on the shaft 13 by means of a taper pin 20 which passes through the part 16 and the shaft 13. The shaft 13 is square at each end so that the said shaft can be rotated from either end of the impression
- 20 cylinder 1 by a suitable key or handle. Inwardly of the sleeve 16 the square shaft is slotted as at 21 for a suitable length and the end 5 of the rubber blanket sheet is passed through the said slot 21. On
- 25 the shaft 13 being rotated the rubber blanket will engage with the square edges of the shaft 13 and apply tension to the rubber blanket. The ratchet wheel 7 co-acts with the pawl 6 so that the shaft
- 30 after having been angularly displaced so as to stretch or tighten the rubber sheet 3 to the desired extent is held in the desired position. One ratchet pawl and mechanism such as 6 and 7 may be provided
- 35 only or such mechanism may be provided at each end of the shaft. The pawl 6 or pawls may co-act with a stop 22 or stops to limit the movement of the pawl or pawls to the desired extent.
- 40 Obviously the printing cylinder and the impression cylinder should be run in synchronism and the two cylinders should be so positioned and arranged that the blanketed gap in the impression cylinder
- 45 comes opposite the small gap in the printing cylinder. When in operation the circular continuity of the rubber sheet is broken at the gap in the impression cylinder and hence there is no contact of
- 50 the paper to be printed on at the gap in the printing cylinder when the two gaps meet and consequently no printed or ink impression on the paper.
- 55 Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—
1. An impression cylinder having a gap one side of which is provided with an undercut recess to receive two bars extending the length of the cylinder one end of a blanket such as a rubber sheet being interposed between the two bars and secured therebetween by screws or other means the other end of the blanket or rubber sheet being held by means in such manner that the said means can be rotated so as to impart the desired tension or stretch to the said blanket.
 2. An impression cylinder according to claim 1 wherein the gap in the cylinder is extended inwardly to form a bore having its centre offset from the centre of the gap the said bore being adapted to receive and support a square shaft on the ends of which sleeves are mounted so as to act as bearings for the square shaft.
 3. An impression cylinder according to claim 1 wherein the shaft is formed with square ends or one square end so that the shaft can be rotated to stretch or tighten the blanket the said shaft being retained in the adjusted position by a ratchet or ratchets adapted to co-operate with a pawl or pawls.
 4. An impression cylinder according to claim 2 wherein at least one sleeve is formed with or has rigidly secured thereto a ratchet wheel adapted to co-operate with a pawl mounted on the cylinder end so as to retain the shaft in any position into which it has been rotatably adjusted.
 5. An impression cylinder according to claim 1 wherein one end of the blanket is passed through a slot in a shaft which is supported in a bore having its centre offset from the centre of the gap in the cylinder the blanket end being secured in the said slot by suitable means so that on rotation of the shaft the blanket is stretched to the desired extent.
 6. An impression cylinder according to claim 3 wherein the movement of the pawl or pawls is limited by a stop or stops mounted in a suitable position on the end or ends of the impression cylinder.
 7. An impression cylinder substantially as hereinbefore described in connection with the accompanying drawing.

Dated this 10th day of July, 1931.

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Fig. 1.

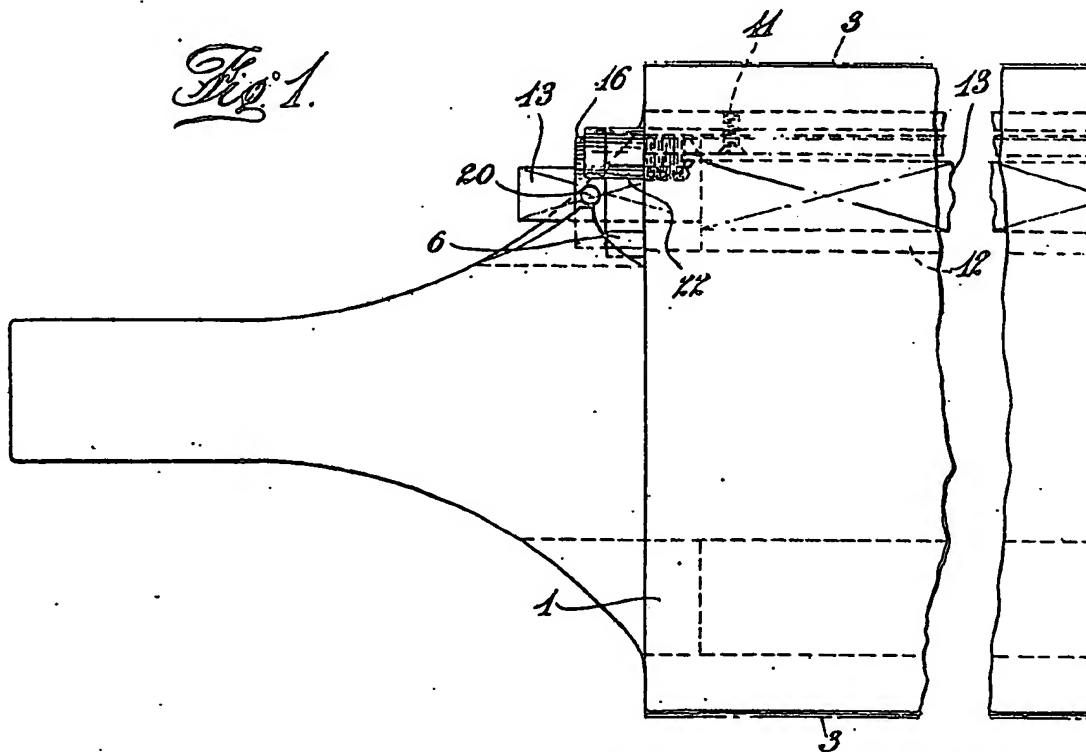
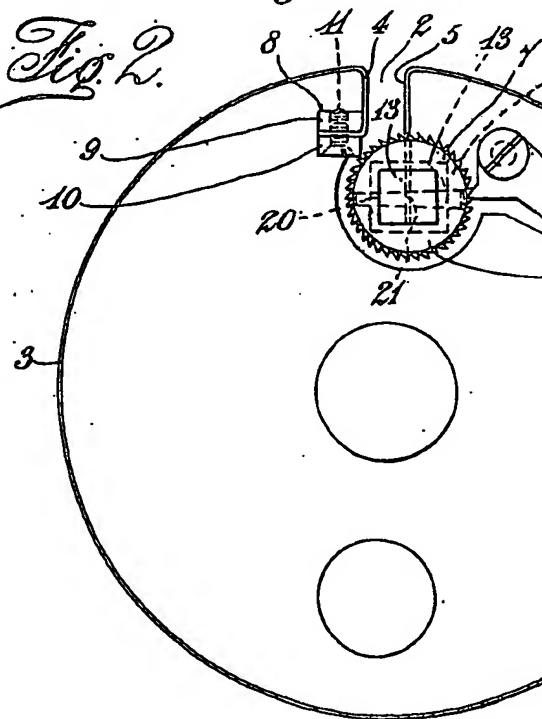


Fig. 2.



[This Drawing is a reproduction of the Original on a reduced scale.]

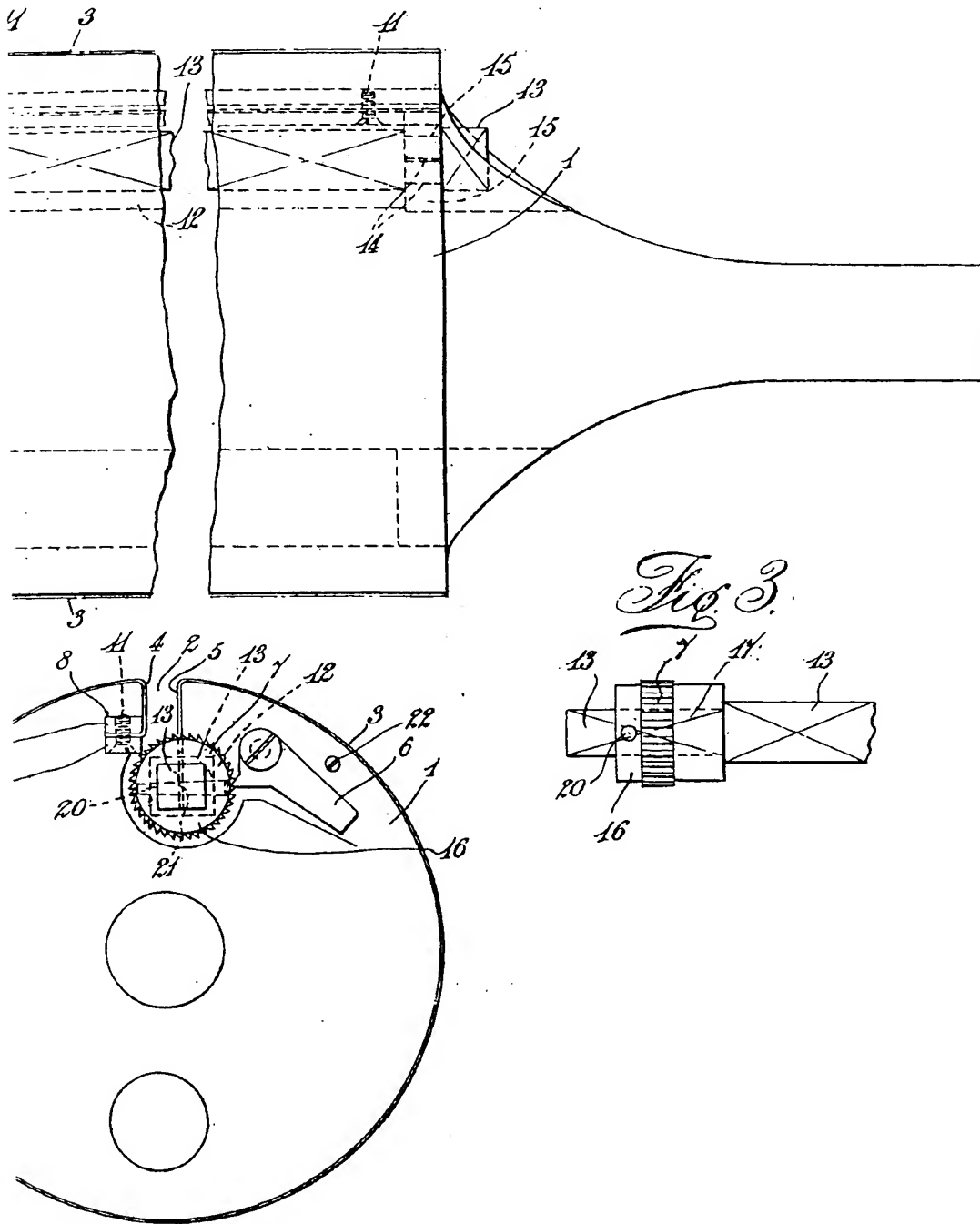


Fig. 1.

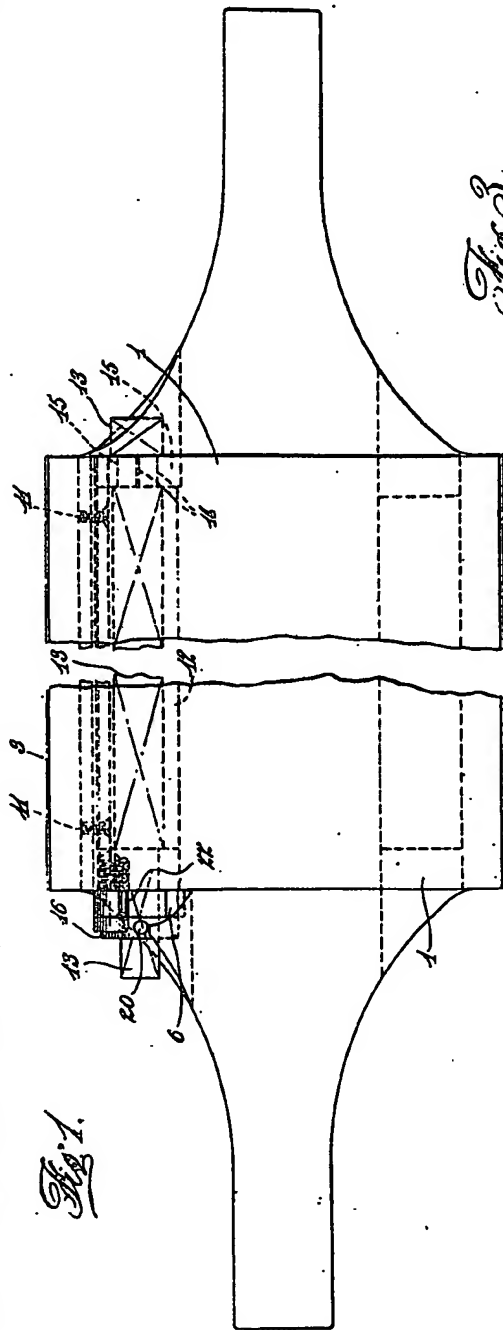


Fig. 2.

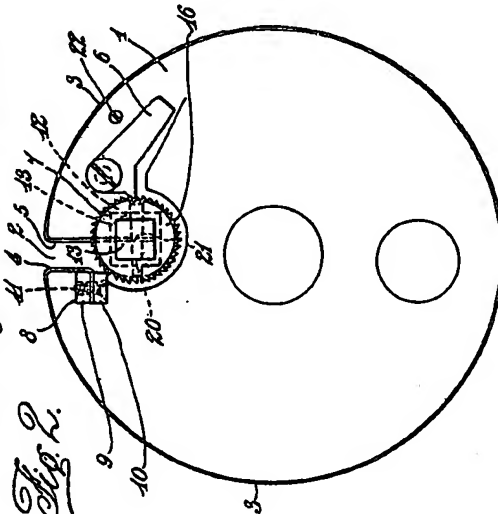
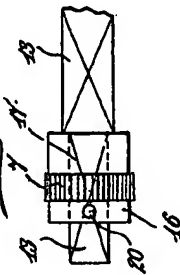


Fig. 3.



[This Drawing is a reproduction of the Original on a reduced scale]